

LISTING OF CLAIMS

1. (Previously Presented) A particle beam therapy system comprising:

- a charged particle beam generator for emitting a charged particle beam;
- a plurality of treatment rooms in each of which an irradiation unit for irradiating the charged particle beam is disposed;
- a charged particle beam transport apparatus having a plurality of beam paths, communicated with said charged particle beam generator, and transporting the charged particle beam emitted from said charged particle beam generator separately to said respective irradiation units in said plurality of treatment rooms;
- a plurality of first manual input devices provided correspondingly to said plurality of treatment rooms for generating irradiation ready signals, respectively;
- a plurality of second manual input devices provided correspondingly to said plurality of treatment rooms for generating irradiation start signals, respectively;
- a control system for deciding the sequence of introducing the charged particle beam to said plurality of treatment rooms based on said respective irradiation ready signals corresponding to said treatment rooms generated by said first manual input devices, and forming the beam paths for introducing the charged particle beam, emitted from said charged particle beam generator, to the respective irradiation units in said treatment rooms in accordance with the decided sequence; and
- an emission start control unit for outputting an emission start signal based on said irradiation start signal generated by said second manual input device corresponding to said treatment room with top priority to which the charged particle beam is to be first introduced, after said beam path for introducing the charged particle beam to the

irradiation unit in said treatment room with top priority has been formed by said control system.

2. (Previously Presented) A particle beam therapy system comprising:
 - a charged particle beam generator for emitting a charged particle beam;
 - a plurality of treatment rooms in each of which an irradiation unit for irradiating the charged particle beam is disposed;
 - a charged particle beam transport apparatus having a plurality of beam paths, communicated with said charged particle beam generator, and transporting the charged particle beam emitted from said charged particle beam generator separately to said respective irradiation units in said plurality of treatment rooms;
 - a plurality of first manual input devices provided correspondingly to said plurality of treatment rooms for generating irradiation ready signals, respectively;
 - a plurality of second manual input devices provided correspondingly to said plurality of treatment rooms for generating irradiation start signals, respectively;
 - a control system for deciding the sequence of introducing the charged particle beam to said plurality of treatment rooms based on the order in which said respective irradiation ready signals corresponding to said treatment rooms have been generated by said first manual input devices, and forming the beam paths for introducing the charged particle beam, emitted from said charged particle beam generator, to the respective irradiation units in said treatment rooms in accordance with the decided sequence; and
 - an emission start control unit for outputting an emission start signal based on said irradiation start signal generated by said second manual input device corresponding to said treatment room with top priority to which the charged particle beam is to be first introduced, after said beam path for introducing the charged particle beam to the

irradiation unit in said treatment room with top priority has been formed by said control system.

3. (Canceled).

4. (Canceled).

5. (Previously Presented) A particle beam therapy system comprising:
a charged particle beam generator for emitting a charged particle beam;
a plurality of treatment rooms in each of which an irradiation unit for irradiating the charged particle beam is disposed;
a plurality of beam paths for communicating said charged particle beam generator separately with said respective irradiation units in said plurality of treatment rooms;
a plurality of first manual input devices provided correspondingly to said plurality of treatment rooms for generating irradiation ready signals, respectively;
a plurality of second manual input devices provided correspondingly to said plurality of treatment rooms for generating irradiation start signals, respectively;
a treatment sequence deciding unit for deciding the sequence of introducing the charged particle beam to said plurality of treatment rooms based on said respective irradiation ready signals corresponding to said treatment rooms generated by said first manual input devices, storing treatment room information representing the selected treatment room to which the charged particle beam is introduced in accordance with the decided sequence, and sequentially outputting the treatment room information in accordance with the decided sequence;

a beam pass forming unit for forming the beam paths for introducing the charged particle beam emitted from said charged particle beam generator to the respective irradiation units in said treatment rooms based on said treatment room information outputted by said treatment sequence deciding unit; and

an emission start control unit for outputting an emission start signal based on said irradiation start signal generated by said second manual input device corresponding to said treatment room with top priority to which the charged particle beam is to be first introduced, after said beam path for introducing the charged particle beam to the irradiation unit in said treatment room with top priority has been formed by said beam pass forming unit.

6. (Previously Presented) A particle beam therapy system comprising:
 - a charged particle beam generator for emitting a charged particle beam;
 - a plurality of treatment rooms in each of which an irradiation unit for irradiating the charged particle beam is disposed;
 - a plurality of beam paths for communicating said charged particle beam generator separately with said respective irradiation units in said plurality of treatment rooms;
 - a plurality of first manual input devices provided correspondingly to said plurality of treatment rooms for generating irradiation ready signals, respectively;
 - a plurality of second manual input devices provided correspondingly to said plurality of treatment rooms for generating irradiation start signals, respectively;
 - a treatment sequence deciding unit for deciding the sequence of introducing the charged particle beam to said plurality of treatment rooms based on the order in which said respective irradiation ready signals corresponding to said treatment rooms have been

generated by said first manual input devices, storing treatment room information representing the selected treatment room to which the charged particle beam is introduced in accordance with the decided sequence, and sequentially outputting the treatment room information in accordance with the decided sequence;

a beam pass forming unit for forming the beam paths for introducing the charged particle beam emitted from said charged particle beam generator to the respective irradiation units in said treatment rooms based on said treatment room information outputted by said treatment sequence deciding unit; and

an emission start control unit for outputting an emission start signal based on said irradiation start signal generated by said second manual input device corresponding to said treatment room with top priority to which the charged particle beam is to be first introduced, after said beam path for introducing the charged particle beam to the irradiation unit in said treatment room with top priority has been formed by said beam path forming unit.

7. (Previously Presented) A particle beam therapy system comprising:
 - a charged particle beam generator for emitting a charged particle beam;
 - a plurality of treatment rooms in each of which an irradiation unit for irradiating the charged particle beam is disposed;
 - a first beam transport system connected to said charged particle beam generator and transporting the charged particle beam emitted from said charged particle beam generator;
 - a plurality of second beam transport systems provided respectively corresponding to said treatment rooms, connected to said first beam transport system, and transporting the

charged particle beam transported through said first beam transport system to the corresponding irradiation units disposed in said treatment rooms;

a path switching device disposed at each of junctions between a beam path in said first beam transport system and beam paths in said plurality of second beam transport systems, and switching the beam path in which the charged particle beam is introduced;

a plurality of first manual input devices provided in said plurality of treatment rooms or in control rooms formed respectively corresponding to said plurality of treatment rooms, and outputting irradiation ready information related to the corresponding treatment rooms;

a plurality of second manual input devices provided in said plurality of treatment rooms or in control rooms formed respectively corresponding to said plurality of treatment rooms, and outputting irradiation start signals related to the corresponding treatment rooms;

a control system for deciding a priority sequence in transport of the charged particle beam to said treatment rooms based on the order in which the irradiation ready information has been outputted from said first manual input devices, and outputting treatment room information representing the selected treatment room, to which the charged particle beam is introduced, in accordance with the decided priority sequence, thereby forming the beam path for introducing the charged particle beam to the selected treatment room; and

an emission start control unit for outputting an emission start signal based on said irradiation start signal generated by said second manual input device corresponding to said treatment room with top priority to which the charged particle beam is to be first introduced, after said beam path for introducing the charged particle beam to the

irradiation unit in said treatment room with top priority has been formed by said control system.

8. (Original) A particle beam therapy system according to Claim 1, wherein said beam path for introducing the charged particle beam to the selected treatment room is formed by said first beam transport system and the corresponding second beam transport system.

9. (Original) A particle beam therapy system according to Claim 2, wherein said beam path for introducing the charged particle beam to the selected treatment room is formed by said first beam transport system and the corresponding second beam transport system.

10. (Previously Presented) A particle beam therapy system according to Claim 7, wherein said control system includes:

a treatment sequence deciding unit for deciding a priority sequence in transport of the charged particle beam to said treatment rooms based on the order in which the irradiation ready information has been outputted from said first manual input devices, storing treatment room information representing the selected treatment room, to which the charged particle beam is introduced, in accordance with the decided priority sequence, and outputting the treatment room information in accordance with the decided priority sequence; and

a controller for, based on the treatment room information, controlling said path switching device for introducing the charged particle beam to the selected treatment

room, thereby forming said beam path for introducing the charged particle beam to the selected treatment room.

11. (Original) A particle beam therapy system according to Claim 1, further comprising display units provided respectively corresponding to said plurality of treatment rooms and displaying the treatment room information in accordance with the decided sequence.

12. (Original) A particle beam therapy system according to Claim 2, further comprising display units provided respectively corresponding to said plurality of treatment rooms and displaying the treatment room information in accordance with the decided sequence.

13. (Original) A particle beam therapy system according to Claim 7, further comprising display units provided respectively corresponding to said plurality of treatment rooms and displaying the treatment room information in accordance with the decided sequence.

14. (Original) A particle beam therapy system according to Claim 7, further comprising display units provided respectively corresponding to said plurality of treatment rooms and displaying information representing the decided sequence.

15. (Previously Presented) A particle beam therapy system according to Claim 5, wherein when a cancel signal for canceling transport of the charged particle

beam to one of said treatment rooms is inputted, said treatment sequence deciding unit cancels the treatment room information regarding said one treatment room.

16. (Previously Presented) A particle beam therapy system according to Claim 6, wherein when a cancel signal for canceling transport of the charged particle beam to one of said treatment rooms is inputted, said treatment sequence deciding unit cancels the treatment room information regarding said one treatment room.

17. (Previously Presented) A particle beam therapy system according to Claim 10, wherein when a cancel signal for canceling transport of the charged particle beam to one of said treatment rooms is inputted, said treatment sequence deciding unit cancels the treatment room information regarding said one treatment room.

18. (Cancelled).

19. (Previously Presented) A particle beam irradiating method for irradiating a charged particle beam emitted from a charged particle beam generator to a patient in selected one of a plurality of treatment rooms by an irradiation unit in the selected treatment room, the irradiating method comprising the steps of:

selecting said plurality of treatment rooms in the order in which respective irradiation ready signals corresponding to said treatment rooms have been generated by first manual input devices, and forming the beam paths for introducing the charged particle beam to the irradiation units in the selected treatment rooms; and

and outputting an emission start signal based on an irradiation start signal generated by a second manual input device corresponding to the treatment room with

top priority to which the charged particle beam is to be first introduced, after said beam path for introducing the charged particle beam to the irradiation unit in said treatment room with top priority has been formed whereby the charged particle beam is introduced to said irradiation unit in the selected treatment room.